

Serial No. 10/621,174
Applicant: Breeden, et al.
Amendment dated November 17, 2005
Attorney Docket No.: 6-3728
Confirmation No.: 4329

Remarks

Allowance of Claims 1-36

Claims 1-36 are allowed claims, and remain as originally filed in this response.

Rejection of Claim 37 under 35 U.S.C. 103(a)

Claim 37 was rejected under 35 U.S.C. 103(a) as being unpatentable over Breeden, US Patent 6,755,625, in view of Trzmiel et al. US Patent 6,910,465.

The examiner states:

Breeden applies as per the last office action and Trzmiel teaches the limitations of applicant's throttle valve as claimed in Claim 37. In particular, the claim does not require that the fuel leave the piston through the piston wall nor does it require that the piston have closed ends. The piston of Trzmiel does have an inlet through the piston wall and the piston does throttle the flow as required by the claim.

It would have been obvious to control the throttled flow to the pump as taught by Trzmiel since the details of the piston are very similar to those of Breeden and the piston was meant to be used in the diesel system of the same type as Breeden.

Applicants respectfully submit that Claim 37 as amended patentably distinguish over the art of record, including the combination of Breeden and Trzmiel et al.

Amended claim 37 is drawn to a method of regulating the flow of working fluid to a high-pressure pump in a fuel injection system of an internal combustion engine. The method includes the step of providing an inlet throttle valve and a fluid passage from the inlet throttle valve to the pump.

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The inlet throttle valve includes a flow passage to flow fluid through the inlet throttle valve to the fluid passage and a hollow piston in the flow passage. The piston includes two closed ends, a piston wall extending between the ends and obstructing the flow passage, and an opening extending through the piston wall to flow fluid past the obstruction.

The method further includes the step of flowing working fluid through the flow passage to flow fluid through the inlet throttle valve and to the high-pressure pump. This step includes the step of flowing working fluid in the flow passage through the opening in the piston wall into the piston and flowing working fluid in the piston through the opening in the piston wall out of the piston to flow the working fluid past the obstruction. The piston moves to open or close the opening to control the output from the throttle valve.

Trzmiel et al. French discloses a throttle valve having an inlet in the piston wall and an open end forming an outlet. Trzmiel et al. does not teach or suggest the piston have closed ends and an opening through the piston wall to flow fluid into and out of the piston as recited in amended claim 37.

Based on the foregoing, the combination of Breeden and Trzmiel et al. does not teach or suggest all the claim limitations recited in amended claim 37. Withdrawal of the rejection and allowance of claim 37 is respectfully requested.

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Amendments to Claims 38-40.

Claim 38 is amended to conform to amended claim 37. Claims 39 and 40 are amended to depend from claim 38 rather than from claim 37 to provide antecedent basis for "inlet and outlet openings". None of the amendments are done in response to a prior art or patentability rejection.

Conclusion

Applicants submit that the application is in condition for formal allowance. Such action is solicited.

In the event issues remain, the Examiner is invited to contact applicants' attorney by telephone to resolve same.

Respectfully submitted,

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